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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,802	08/09/2006	Hironobu Teraoka	5173-0103PUS1	9726

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BIRCH STEWART KOLASCH & BIRCH  
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EXAMINER
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WHITE, DWAYNE J

ART UNIT	PAPER NUMBER
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3745

NOTIFICATION DATE	DELIVERY MODE
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01/06/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/588,802	<b>Applicant(s)</b> TERAOKA ET AL.	
	<b>Examiner</b> DWAYNE J. WHITE	<b>Art Unit</b> 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2,5,8,9,15,16 and 18-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,5,8,9,15,16 and 18-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's RCE filed 28 September 2009 has been fully considered. Claims 2, 5, 8, 9, 15, 16, 18-22 are pending. Applicant has amended claims 2, 5 and 9 to recite the limitation of "wherein a pitch of the notches (17) is denoted as S, and a length of each of a smooth portions (18) is denoted as M, a rate  $M/S$  of the length M of the smooth portions (18) to the pitch S of the notches (17) is set to  $0.3 < M/S < 0.8$ ." While this is not explicitly stated in the secondary reference Shibata et al., the Examiner notes that this ratio is a function of the shape of the notch and in this case would be optimization of the shape to meet the particular noise reduction desired. The Examiner has, however, withdrawn Shibata et al. as the secondary for the 103(a) rejection in the previous Office Action and has applied new prior art Patel (4,089,618) to provide support for the Examiner's assertion that the ratio is a variable that achieves a recognized result. Patel teaches that a series of notches in the trailing edges of the blades while all of the same pitch and dimensions are longitudinally displaced along the edge of the blades from each other by an amount less than the pitch of the notches and by staggering the notches in this fashion undesirable noise is avoided (Column 4, lines 16-24). Patel further notes that the dimensions will vary depending on the characteristics of the blades to which they are applied. Therefore, the Examiner holds the position that the ratio presented by Applicant based on the dimensions of the notches would achieve the known result of noise reduction as taught by Patel. This position has been set forth in the 103(a) rejection below.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 5, 8, 9, 15, 16, 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (JP 141494 A) in view of Patel (4,089,618). Sato et al. discloses an impeller for blower comprising: a circular support plate 16 having a rotational axis; and a plurality of blades 19 provided on a peripheral edge portion of the support plate, extending in parallel to the rotational axis and having a predetermined blade angle, the impeller being characterized by: a plurality of notches 20 provided on an outer and inner edge of a pair of side edges of each of the blades (See Figure 10), and arranged at predetermined intervals along a longitudinal direction of the respective blades. The Examiner notes that figures 5, 7 and 10 shows that the notches can also be placed on either the outer or inner side edges. Sato et al. does not disclose a plurality of smooth portions between a pair of notches, the specific dimensions of the notches, the positions of the notches on each impeller blade or that the notches are only provided on some of the plurality of blades.

Patel teaches the use of notches on the edges of blades to reduce noise generation. The notches of Patel have smooth portions between each notch (Figure 1). Since both Sato et al. and Patel disclose the use of notches on blade edges to reduce noise generation, and it is clear that the notches of Patel function in the same way as the notches of Sato et al., it would have been

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obvious at the time the invention was made to one of ordinary skill in the art to modify the notches of Sato et al., with the teaches of Patel by providing smooth portions between each of the notches for the purpose of reducing noise generated by the blades.

Patel further teaches that a series of notches in the trailing edges of the blades while all of the same pitch and dimensions are longitudinally displaced along the edge of the blades from each other by an amount less than the pitch of the notches and by staggering the notches in this fashion undesirable noise is avoided (Column 4, lines 16-24). Patel further notes that the dimensions will vary depending on the characteristics of the blades to which they are applied.

*A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)*

Therefore, the Examiner holds the position that the ratio presented by Applicant based on the dimensions of the notches would achieve the known result of noise reduction as taught by Patel

Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (JP 141494 A) in view of Patel in further view of Takada et al. (JP 40116749 A). Sato et al. as modified by Patel discloses all of the claimed subject matter as stated in the above 35 U.S.C 103(a) rejection except for a plurality of projections being provided on the tongue portion and the guide portion of the casing that correspond with the respective notches on the outer edges of the blades.

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Takada et al. teaches providing projections on the tongue portion of the casing for the purpose of reducing noise. Since Sato et al. as modified already discloses notches (and therefore, projections) on the impeller blades for the purpose of reducing noise and Takada et al. teaches the same principle of providing projections (and therefore notches) on the tongue portion for the same purpose, it would have been obvious at the time the invention was made to one of ordinary skill in the art to further modify the tongue and guide portions of Sato et al., with the teachings of Takada et al., by providing projections as claimed for the purpose of reducing the noise generated by the impeller.

## **CONCLUSION**

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DWAYNE J. WHITE whose telephone number is (571)272-4825. The examiner can normally be reached on 7:00 am to 3:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dwayne J White/  
Examiner, Art Unit 3745

DJW